

New Inventions.

Improved Car Wheel.

The aim of the inventor, in this improvement, is the construction of a cast-iron car wheel that shall combine the following advantages: An equal rate of cooling and contraction in all parts by a judicious distribution and ventilation of the metal; sufficient provision for unequal shrinkage or strain; adequate continuous support of the rim; transverse or lateral stability effected by width of bearing of the connecting portion on the hub, and by the brace and counter brace character of the said portion; avoidance of liability to separate, either athwart the hub or between the latter and the connecting portion, or across the rim, or in other parts now subject to fracture; and, the attainment of the requisite strength with the least possible weight of metal.

The wheels heretofore made may be ranged mainly under two heads, namely: those in which the hub and rim are connected by spokes, and those in which they are connected by plates; a few combine, to some extent, the advantages of both systems.

The spoke wheels generally are subject to transverse fractures of the rim, and also to the severance of the latter from the spokes near the place of junction. The disk wheels, on the other hand, although at present extensively adopted, are not free from radical defects.—The want of an adequate lateral brace and the divergent action of the disks in settling, tend to strain the two ends of the hub apart, and cause it frequently to fracture at right angles to the axis during the process of boring, or afterward, when in use. Another difficulty attending the disk wheels arises from the practical impossibility of perfectly centering the cores, and the consequent inequality of thickness of the plates, so that they have to be run very heavy, amounting to several thousand pounds superfluous weight in a single train.

Another practical objection in casting the disk wheels arises from the difficulty of providing a sufficient vent for any moisture remaining in or about the core, and, as a consequence, a more or less porous formation of the disks, making them treacherous objects of dependence. They are also liable from the much longer retention of heat about the center than at the outside, to be undergoing contraction at the center, while the parts toward the outside are expanding by crystallization, and the consequence is a weakness and liability to part either by the radial fracture across the hub, or by a concentric crack in the plate near the hub.

In the accompanying engravings, fig. 1 is a front view, and fig. 2 a transverse section. A is the hub and B the rim. The web or connecting portion of the wheel radiates from the hub in the form of a number of spokes or plates, C, whose depth or dimension parallel with the axis is the full length of the hub, or nearly so, so as to give abundant lateral stiffness to the wheel. From the hub, each plate projects nearly at right angles from the hub surface, whence, diverging alternately to the front and back of the wheel in an easy curve, it becomes rapidly thinner in the direction parallel with the axle, and thicker in the plane of the wheel, until, a little before it reaches the rim, it has expanded into a plate, D, which joining with that of the next alternate spoke on each side, becomes one of a pair of continuous flanges, E, one at each verge of the concavity of the wheel, thus forming two flanges, and presenting the main substance in the direction of revolution, which is where the strength is here wanted.

The curved form given to the web, as represented, enables the parts to accommodate themselves to any unequal shrinkage without the danger of fracture, while at the same time the peculiar form of the web operates both as a brace and counter-brace.

The form of the curve is also such as to present the connecting plates vertically, or nearly so, both to the hub and to the rim, which is the form best adapted to communicate the strain direct to the plate. The wheel, although at first sight it might seem otherwise, is very

easily molded, the hollow space, *b*, between the flanges being formed by a single dry core in the shape of a ring, which is readily supported without the necessity for anchoring and the uncertainty attending the molding of the disk wheels, and this annular core is, with exception of the usual one for the axle, the only one required. There is also abundant ventilation for the core.

It should also be observed that the openings

IMPROVED CAR WHEEL.

Fig. 1

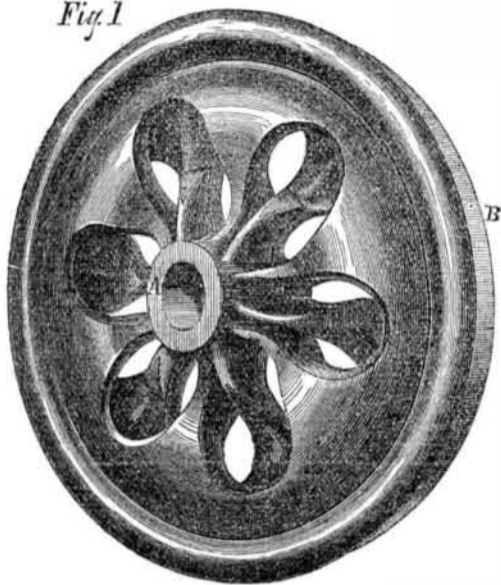
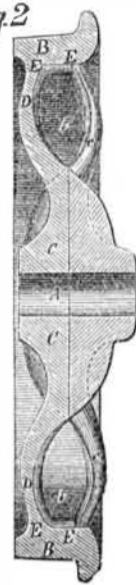


Fig. 2



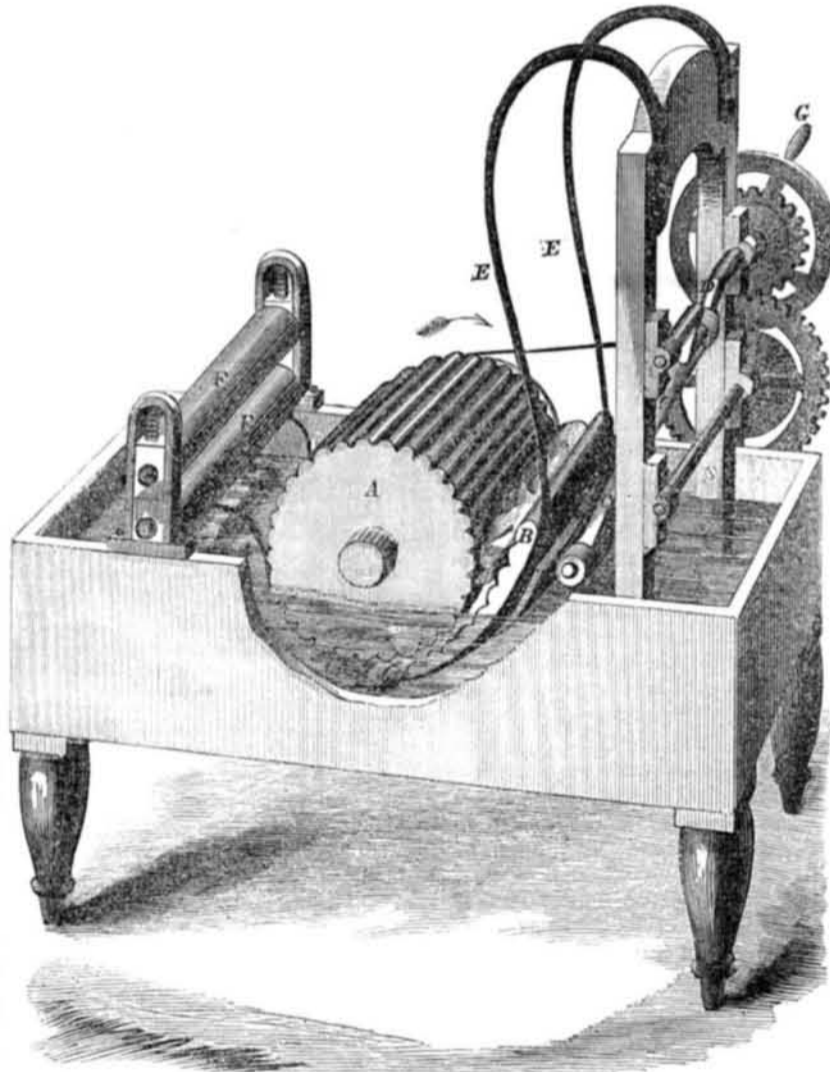
C, in one flange, come opposite the solid portions in the other one, so that any fracture would have either to pass through the wide part of one of the flanges, or to run obliquely across the tread of the wheel.

This improvement is one of simplicity, and is constructed upon scientific principles. It has been subjected to the most thorough

practical tests, which have invariably proved its superiority.

The inventor is Mr. Z. H. Mann, No 454 8th st., Cincinnati, O., from whom further information can be had. Patented Oct. 4th, 1853. The wheels are manufactured extensively by Underhill, Greenleaf & Co., Indianapolis, Ind. and M. Felton & Co., Milbury, Mass.

IMPROVED WASHING MACHINE.



New Washing Machine.

In this improvement, the clothes to be washed are placed between the corrugated cylinder, A, and the curved corrugated board, B. This board is attached by a joint to the pitman, C, which connects with crank, D.—When D rotates, the board, B, receives an up and down motion, while the springs, E, press the board against cylinder, A, and thus the clothes are thoroughly rubbed between the corrugated surfaces. The action bears a close resemblance to hand work, and is evidently very effectual. In washing shirts, the body of the garment may be held back by hand, so as to give the collars and cuffs an extra rubbing, if necessary.

F F are wringing rollers, between which the clothes are passed after having been washed. These rollers may or may not be attached to the machine. The various parts are put in motion by belts or gearing, power being applied at G. This improvement is simple, and appears to be constructed on correct principles.

Invented by V. R. Stewart. Patented June 24, 1856. For further information address Close, Stewart & Co., Weedsport, N. Y.

Hon. Chas. Mason, Commissioner of Patents, Dr. Gale, Chemical Examiner, and other officers of the Patent Office, have gone into the country to rusticate for a short time.

A Railroad Hotel Car.

A car lately put on the Illinois Central Railroad contains six state rooms, each room having two seats with cushioned backs, large enough for a person to lie upon. The backs of the seats are hung with hinges at the upper edge, so that they may be turned up at pleasure, thus forming two single berths, one over the other, where persons may sleep with comfort. In one end of the car is a small wash room. On the opposite side of the car from the state-rooms is a row of seats with revolving backs, similar to barbers' chairs, so arranged that the occupant may sit straight or recline in an easy attitude, at pleasure. There are other cars on the same road which have each two or three similar state-rooms.

To this car there has but to be added the supplying of meals at moderate prices, at all hours, to make railroad traveling positively perfect. It would be a good plan on all railroad lines of more than one hundred miles long, to have a special car where refreshments could be obtained at reasonable prices. The houses of refreshment at railroad stations, where passengers are compelled to run "when the bell rings," to the great danger of their limbs, and the loss of many sixpences, ought to be swept away to make room for some better system, whatever that might be, and the best we can suggest is a special car for refreshments.

Scientific News and Illustrations.

There is one fact to which we would call attention, viz.: All the illustrations of American inventions which we publish are original, drawn and engraved specially for our paper. We never publish a cut that has previously appeared in this country. This, of course, involves us in great expense. But it enables us to present our readers with a continued succession of novelties which they can find no where else.

There is hardly a single invention of any importance, patented in the United States which is not, sooner or later, illustrated and described in our journal. Those who consult our pages have, therefore, reached the fountain head of information concerning the latest and best improvements. The largest portion of scientific and mechanical intelligence which circulates through the columns of the public press, daily and weekly, comes originally from the SCIENTIFIC AMERICAN. It is copied from one paper into another, too often without proper credit for its source, until it becomes to be regarded as common property, and editors are unable to determine its chronology. Hardly a day passes but we are greeted, in the papers, with some re-hash of an old article on "very recent" discoveries, the original particulars of which appeared years ago in our journal.

If editors would take more pains to quote directly from the SCIENTIFIC AMERICAN, instead of relying upon second-hand sources for their scientific paragraphs, they would keep their readers much better posted up.

Black, the Chemist.

The following is a description of Professor Black, the father of modern chemistry, and the discoverer of the latent heat of steam. It is taken from Lord Cockburn's Memorials—a work just published:—

"Dr. Joseph Black had, at one time, a house near us, to the west. He was a striking and beautiful person; tall, very thin, and cadaverously pale; his hair carefully powdered, though there was little of it except what was collected into a long thin queue; his eyes dark, clear, and large, like deep pools of pure water. He wore black speckless clothes, silk stockings, silver buckles, and either a slim green silk umbrella or a genteel brown cane. The general frame and air were feeble and slender. The wildest boy respected Black. No lad could be irreverent towards a man so pale, so gentle, so elegant, and so illustrious. So he glided like a spirit through our rather mischievous sportiveness unharmed. He died seated, with a bowl of milk on his knee, of which, on his ceasing to live, he did not spill a drop; a departure which it seemed, after the event happened, might have been foretold of this attenuated philosophical gentleman."